

## CLASSIFICATION

AWS A5.1	E7018-1 H4	A-Nr	1
ISO 2560-A	E 42 4 B 3 2 H5	F-Nr	4
		9606 FM	1

## GENERAL DESCRIPTION

Basic coated low-hydrogen welding electrode with very good welding properties giving a tough, crack resistant weld metal. Suitable for welding structural steel and high tensile ship plate with a minimum tensile strength of 500N/mm<sup>2</sup>.

Smooth and stable arc.

The electrode is well suited for positional welding particularly vertical and overhead. Good slag removal even in narrow gaps.

The weld metal provides high crack resistance and excellent impact toughness down to temperatures of -40°C.

Also available in Protech™ Vacuum Pack

## WELDING POSITIONS [ISO/ASME]



PA/1G



PB/2F



PC/2G



PF/3Gu



PE/4G



PH/5Gu

## CURRENT TYPE

AC / DC +

## APPROVALS

ABS	BV	DNV/GL	TÜV	RINA
3H5, 3Y	3,3Y H	4Y40H5	+	3,3Y H

## CHEMICAL COMPOSITION (W%), TYPICAL, ALL WELD METAL

C	Mn	Si	P	S
0.08	1.2	0.4	≤0.020	≤0.015

## MECHANICAL PROPERTIES, TYPICAL, ALL WELD METAL

Condition	Yield strength (N/mm <sup>2</sup> )	Tensile strength (N/mm <sup>2</sup> )	Elongation (%)	Impact ISO-V(J)	
				-50°C	
Typical values	AW	≥420	510-610	≥24	≥90

## PACKAGING AND AVAILABLE SIZES

	Diameter (mm)	2.5	3.2	3.2	4.0	4.0	5.0
	Length (mm)	350	350	450	350	450	450
Carton + PE foil	Pieces / unit	90	55	55	40	40	25
	Net weight/unit (kg)	1.9	1.9	2.4	2.1	2.7	2.6
Protech™	Pieces / unit	90	55	55	40	40	25
	Net weight/unit (kg)	1.9	1.9	2.4	2.1	2.7	2.6

Identification Imprint: 7018-1 VANDAL

Tip Color: none

Vandal: rev. C-EN27-12/02/18

# Vandal

## MATERIALS TO BE WELDED

Steel grades/Code	Type
<b>General structural steels</b>	
EN 10025	S185, S235 J0 / J2 / JR, S275 J0 / J2 / JR, S355 J0 / J2 / JR / K2
<b>Ship plates</b>	
ASTM A 131	Grade A, B, D, E, AH32 up to and including EH36
<b>Cast steels</b>	
EN 10213-2	GP 240 GH, GP 280 GH
<b>Pipe material</b>	
EN 10208-1	L210 GA, L235 GA, L245 GA, L290 GA, L360 GA
EN 10208-2	L245 MB / NB, L290 MB / NB, L360 MB / NB / QB, L415 MB / NB / QB
API 5LX	X42, X46, X52, X56, X60, X65
EN 10216-1	P195 TR1 / TR2, P235 TR1 / TR2, P265 TR1 / TR2
EN 10216-2	P195 GH, P235 GH, P265 GH
EN 10216-3	P275 NL1 / NL2, P355 N / NH / NL1 / NL2
<b>Boiler &amp; pressure vessel steels</b>	
EN 10028-2	P235GH, P265GH, P295GH, P355GH
<b>Fine grained steels</b>	
EN 10025 part 3	S275 N / NL, S355 N / NL, S420 N / NL
EN 10025 part 4	S275 M / ML, S355 M / ML, S420 M / ML
<b>Others</b>	Steel grades with equivalent requirements as per above classified per ASTM, JIS etc

## CALCULATION DATA

Sizes Diam. x length (mm)	Current range (A)	Current type	Arc time - per electrode at max. current - (S)*	Energy E(kJ)	Dep. rate H(kg/h)	Weight/ 1000 pcs (kg)	Electrodes/ kg weldmetal B	kg electrodes/ kg weldmetal 1/N
2.5x350	65-95	DC+	56	-	0.9	-	74	1,56
3.2x450	85-135	DC+	77	-	1,4	-	34	1,48
4.0x450	110-210	DC+	80	-	2.0	-	22	1,50
5.0x450	170-240	DC+	105	-	2,4	-	14	1,42

\*Stub end 35mm

## WELDING PARAMETERS, OPTIMUM FILL PASSES

Diameter (mm)	Welding positions				
	PA/1G	PB/2F	PC/2G	PF/3Gup	PE/4G
2.5	90 A	90 A	85 A	75 A	80 A
3.2	130 A	130 A	120 A	115 A	115 A
4.0	170 A	170 A	150 A	150 A	150 A
5.0	220 A	220 A	210 A	190 A	

## REMARKS / APPLICATION ADVICE

Redry electrodes 2-4h 350 ±25°C after removal from cardboard boxes